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J03 Yuma Proving Ground - Wastewater Utility Systems

J03.1 Yuma Proving Ground Overview

Yuma Proving Ground (YPG) is located adjacent to the Colorado River in the Sonora Desert, 25 miles north of the city of Yuma, Arizona. It is approximately 180 miles east of San Diego, California and approximately 185 miles southwest of Phoenix, Arizona. YPG is generally "U-shaped" and covers over 1,300 square miles, an area larger than the state of Rhode Island. YPG's boundaries extend 58 miles north and south and 52 miles east and west. YPG also has limited access rights over and in the KOFA Game refuge, located in the center of the "U".

YPG's history dates back to 1943 when the U.S. Army Corps of Engineers opened the Yuma Test Branch (the Test Branch) along the Colorado River below the Imperial Dam to test new bridge designs, boats, vehicles and well-drilling equipment. After the war, the work at the Test Branch declined until the Installation, in January 1950, was temporarily turned over to the Corps of Engineers. Yuma Test Station (the Station) was reactivated a year later and placed under the control of the Sixth Army. The primary mission of the Station was expanded to conduct desert environmental testing of military equipment. In 1962, control of the Station was reassigned to the Army's Materiel Command (AMC) and placed under the immediate control of the Army Test and Evaluation Command (ATEC). The Installation's name was changed to Yuma Proving Ground in 1963. In 1974, YPG was designated as a Major Range and Test Facility Base (MRTFB) by DoD.

Today, YPG is a multi-purpose test facility able to test every weapon system in the ground combat arsenal. Over 2,000 military and civilian employees are employed in a wide variety of technical occupations at the Proving Ground. YPG's major testing capabilities include:

- Ground weapons system;
- Helicopter armament and target acquisition systems;
- Artillery and tank munitions;
- Cargo and personnel parachutes, including guided systems technologies;
- Mines and mine removal systems;
- Tracked and wheeled vehicles in desert environment;
- Vibration-free, interference-free test of smart weapons systems; and
- Nuclear Regulatory Commission (NRC) license for testing of deleted uranium munitions.

YPG is generally divided into three major areas: the Laguna area, the KOFA Firing Range, and the Cibola Range. Located on the southwest corner of YPG, most of the Installation's facilities and supporting utility infrastructure are located either in or relatively near the Laguna area. These facilities include the Main Administration Area (MAA), Yuma Test Center (YTC), Laguna Army Airfield (LAAF), KOFA Front Firing South (KFFS), KOFA Front Firing North (KFFN), Castle Dome Heliport (CDH), Castle Dome

Heliport Annex (CDA), Dynamometer Test Course (DYNO), West Environmental Test Area (WETA), South Cibola Range, IRCC (CIB) and North Firing Front Road Extension (NFF).

KOFA Firing Range extends 55 miles east from the Laguna area. KOFA Range is an integrated facility for the open air testing of direct and indirect fire from tanks, artillery, mortars and small missiles, and mines. The KOFA Range complex supports testing through 21 fixed, permanent firing positions, with over 310 survey firing points. The KOFA Range area includes the Front Firing areas (i.e., KFFS and KFFN), the Terminal Ballistics Evaluation, and the Extended Range Munitions area, located in the KOFA Firing Range East (KFRE) area. Cibola Range extends 40 miles north from the Laguna area. Cibola Range is the primary test area used for air delivery aircraft, aircraft armament, fire control and manned and unmanned aircraft testing. The CDH and CDA facilities are located in the southeast corner of Cibola Range.

J03.2 Wastewater Utility System Description

The wastewater utility systems at the Proving Ground consist of five separate collection and treatment systems. The five wastewater utility systems include systems which serve the MAA, YTC, LAAF, KFFS and CDH/CDA areas. Although the MAA wastewater utility system includes the sewage lift stations (SLS) and force mains, the other four systems are primarily gravity systems. The wastewater utility systems components include approximately 87,105 linear feet of pipe ranging in size from less than 4-inch to 12-inch in diameter, 179 manholes, four SLSs and five sewage lagoons. (The wastewater utility component quantities were "taken-off" of the utility system drawings provided by Installation personnel.) Several outlying areas have septic tank systems with perforated pipe drain fields. These systems are not included in this privatization action.

Main Administration Area

The wastewater system at MAA includes approximately 56,180 linear feet of collection lines ranging in size from 4-inch to 12-inch diameter pipe, 102 manholes, four SLSs and a sewage lagoon. Although most of the utility system was constructed in 1948, other major construction projects were completed in 1959. Since 1959, the improvements to the wastewater system have been relatively small. For inventory purposes, the MAA collection system was subdivided into five wastewater collection (WC) areas. Subdivision was based in part upon the date of construction, per real property records, of facilities within the sub-areas.

MAA Area WCI includes the housing area south and west of Halo and "D" Streets and five administrative type buildings. Although most of the housing structures are single-family units, some are duplex units. This area includes the wastewater collection facilities manholes F5 and F6 downstream to manhole A4. Originally constructed in 1948, the wastewater system within this area includes approximately 3,000 feet of 8-inch, 1,975 feet of 6-inch and 1,305 of 4-inch diameter collection lines; 17 manholes; and 41 service laterals.

MAA Area WC2 includes the housing area, located east of Cutter Avenue, the elementary school, hospital, chapel and child development center. The housing area consists of 134 family housing units, predominately duplex structures. This area includes the wastewater collection facilities upstream of manhole E10. Originally constructed in 1959, the wastewater system within this area includes approximately 9,400 feet of 8-inch, 3,480 feet of 6-inch and 8,720 feet of 4-inch diameter collection lines; 41 manholes; and 212 service laterals.

MAA Area WC3 includes the housing area on the southwest side of MAA, between MAA Areas WC1 and WC2. Although this area includes mostly family housing (33 units), it also includes the swimming

pool and the gymnasium complex. This area includes the wastewater collection facilities located downstream of manholes F5 and E6 and upstream of manhole E10. Originally constructed in 1957, the wastewater system within this area includes approximately 3,450 feet of 8-inch, 4,030 feet of 6-inch and 1,700 feet of 4-inch diameter collection lines; 15 manholes; and 60 service laterals.

MAA Area WC4 includes the west side of MAA between MAA Areas WC1, WC3 and WC5. Most of the facilities in MAA Area WC4 are listed on the drawings as semi-permanent. The facilities classified as permanent are the commissary, enlisted barracks and the community activity center. The wastewater collection facilities for this area include the main lift station (Facility No. 703) upstream to manhole B3. Constructed primarily in 1948, this area includes approximately 290 feet of 12-inch, 1,010 feet of 10-inch, 4,560 feet of 8-inch, 3,540 feet of 6-inch and 1,530 feet of 4-inch diameter collection lines; 21 manholes; and 33 service laterals.

MAA Area WC5 includes the northern most portion of MAA. The wastewater collection facilities in this area are located upstream of manhole B3. Constructed in 1948, this area includes approximately 2,410 feet of 8-inch, 680 feet of 6-inch and 590 feet of 4-inch diameter collection lines; eight manholes; and nine service laterals.

The four SLSs are located on the west side of MAA. Two of the SLSs can be classified as major stations, while the remaining two SLSs are relatively small. The two major SLSs (Facility Nos. 703 and 703A) are configured in parallel, such that either SLS can pump all the wastewater collected within MAA to the MAA lagoon, with the second SLS in a standby mode. Both major SLSs are duplex stations with submersible pumps capable of pumping 600 gpm, powered by a 20 horsepower motor. Pump operation is controlled by suspended float controls. Prior to reaching the SLSs, the wastewater passes through a stainless steel bar screen structure where large objects are removed. All flows from the major SLSs are metered by a magnetic flow meter. These SLSs have an emergency generator to provide electrical power in case of a power outage. Both major SLSs have local visual alarms and remote alarm indication at the central monitoring system located at the fire station. The initial SLS was installed in 1971 and the second SLS was added in 1998.

The other two SLSs are relatively small stations serving small isolated areas: the car wash and trailer park. The SLS located at the car wash has two submersible 0.5 horsepower pumps. The SLS located in the trailer park area has two submersible 0.75 horsepower pumps. Both of the small SLSs are controlled by suspended float controls. The SLSs pump the wastewater into the gravity system, which flows to the two major SLSs (Facility Nos. 703 and 703A). The small SLSs are also equipped with audible and visual alarm signals.

As previously noted, the major SLSs (Facility Nos. 703 and 703A) pump all the wastewater collected in the MAA area through the 4,510 feet of 10-inch diameter force main to the MAA lagoon (Facility No. 704), located south of MAA. Initially constructed in 1971, the lagoon included three unlined cells: two large cells with surface areas of 8-3/4 acres and a third overflow cell with a surface area of 5-1/4 acres. One of the two larger cells has been sub-divided into three small cells of 2-3/4 acres per cell. As a result, the MAA lagoon consists of five unlined cells. Wastewater flowing into the lagoon is presently disposed of through evaporation and infiltration into the ground.

The wastewater enters the MAA lagoon through a diversion structure at the north end of the lagoon complex where the wastewater is diverted to either the large main cell or the three small cells. When the primary cells are full, the wastewater is diverted into the overflow cell. Currently the overflow cell has been used only sparingly to temporarily replace one of the main cells when one of the cells is taken out of service for maintenance.

Yuma Test Center

The wastewater system at YTC includes approximately 14,240 linear feet of pipe ranging in size from less than 4-inch to 12-inch in diameter, 31 manholes, a SLS and a sewage lagoon. Originally constructed in 1954, only relatively small additions or upgrade projects have been made to YTC's wastewater system.

Within YTC, there are approximately 16 buildings connected to the wastewater system. The collection system consists of approximately 1,720 feet of 12-inch, 1,890 feet of 10-inch, 7,610 feet of 8-inch, 2,380 feet of 6-inch, 520 feet of 4-inch and 120 feet of less than 4-inch gravity collection lines; 31 manholes; and 22 service laterals. Wastewater collected within YTC flows by gravity to the YTC lagoon.

The YTC lagoon system includes an Imhoff tank, three unlined cells and three unlined sludge drying beds. The wastewater collected from the YTC flows to the Imhoff tank (Facility No. 2800) located approximately 3,000 feet south of the YTC, where the heavier solids are removed. From the Imhoff tank, the wastewater flows to a diversion structure where the flow is directed to one of two primary cells or the overflow cell. Wastewater flowing into the lagoon is presently disposed of through evaporation and infiltration into the ground. A sludge pump transfers the settled sludge from the Imhoff tank via a 4-inch line to the three unlined sludge drying beds approximately 100-feet west of the Imhoff tank. The beds are approximately 20 x 30 feet in size.

Laguna Army Air Field

The wastewater system at LAAF includes approximately 3,775 linear feet of pipe ranging in size from 4-inch to 8-inch in diameter, 13 manholes, a SLS and a sewage lagoon. Originally constructed in the early 1960s, only relatively small additions or upgrade projects have been made to the LAAF wastewater system.

At LAAF, there are approximately 11 buildings connected to the wastewater system. The collection system consists of approximately 2,835 feet of 8-inch, 690 feet of 6-inch and 250 feet of 4-inch gravity collection lines; 13 manholes; and 11 service laterals. Wastewater collected within LAAF flows by gravity to the LAAF lagoon.

Originally constructed in 1962, the LAAF lagoon (Facility No. 3029) included two unlined cells. In 1999, two lined stabilization cells and two lined evaporation cells were added to the LAAF lagoon. The two stabilization cells have a total surface area of roughly 3/4 acre and the two evaporation cells have a total surface area of approximately four acres. The wastewater entering the lagoon system is metered before the wastewater is directed to one of two stabilization cells, then flowing on to one of the two evaporation cells. There is no discharge from these lagoons other than by evaporation.

KOFA Firing Front South

The wastewater system at KFFS includes approximately 10,860 linear feet of pipe ranging in size from 4-inch to 8-inch in diameter, 30 manholes and a sewage lagoon. Originally constructed in early 1973, only relatively small additions or upgrade projects have been made to the KFFS wastewater system.

At KFFS, there are approximately 13 buildings connected to the wastewater system. The collection system consists of approximately 9,560 feet of 8-inch, 900 feet of 6-inch and 400 feet of 4-inch gravity collection lines; 30 manholes; and 16 service laterals. Wastewater collected within KFFS flows by gravity to the original KFFS lagoon.

Constructed in 1976, the original KFFS lagoon (Facility No. 3474) included one unlined cell, located 4,000 feet southeast of the KFFS main complex. In 1996, a new four cell lagoon was constructed 3,000 feet northwest of the original lagoon and was connected to the system via a new 8-inch gravity line. The new lagoon includes two lined facultative cells with surface area of 1/3 acre each and two lined evaporation cells with surface areas of 1-1/4 acres. The wastewater entering the lagoons is metered before the wastewater is directed to one of two facultative cells, then flowing on to one of the two evaporation cells. There is no discharge from these lagoons other than by evaporation.

Castle Dome Heliport / Castle Dome Heliport Annex

The wastewater system serving the CDH area includes approximately 2,050 linear feet of pipe ranging in size from less 4-inch to 8-inch in diameter, three manholes and a sewage lagoon with two cells. Originally constructed in 1960, only relatively small additions or upgrade projects have been made to the CDH wastewater system.

The collection system at CDH consists of 800 feet of 8-inch and 60 feet of less than 4-inch gravity line and three manholes. There is one service line for Facility No. 6071. The collection system at CDA consists of 240 feet of 6-inch and 950 feet of 4-inch gravity line; and three manholes. Wastewater collected within the CDH area flows by gravity to the CDH lagoon.

Constructed in 1960, the CDH lagoon (Facility No. 6092) includes two unlined cells. Each cell has a surface area of approximately 1/3 acre. Wastewater flows through a septic tank and then 70 feet of 8-inch gravity wastewater line to the first cell where solid settlement takes place. When the first cell is approximately two-thirds full, the wastewater overflows into a channel which leads to the second cell.

J03.2.1 Inventory

The Offeror shall base the proposal on site inspections, information in the technical library, other pertinent information, and to a lesser degree, the above description and following inventory list. Under no circumstances shall the successful Offeror be entitled to any rate adjustments based on the accuracy of the description above and inventory below.

Table 1 provides a general listing of the major wastewater systems fixed assets for the YPG wastewater collection system included in the purchase. The system will be sold in a "as is, where is" condition without any warranty, representation, or obligation on the part of Government to make any alterations, repairs, or improvements. Ancillary equipment attached to, and necessary for, operating the system, though not specifically mentioned herein, is considered part of the purchased utility.

Table 1 - Fixed Inventory

	System Component	<u>Size</u>	Quantity	<u>Unit</u>	Approximate Year of Construction
<u>Pipe</u>					
	Various Material Types	<4 inch	180	Linear Feet	1955
	Various Material Types	4 inch	15,965	Linear Feet	1956
	Various Material Types	6 inch	17,915	Linear Feet	1954
	Various Material Types	8 inch	43,625	Linear Feet	1954
	Various Material Types	10 inch	2,900	Linear Feet	1951
	Various Material Types	12 inch	2,010	Linear Feet	1951
	Various Material Types - Force Main	10 inch	4,510	Linear Feet	1959
	Subtotal Pipe		87,105	Linear Feet	

	System Component	<u>Size</u>	Quantit	<u>Y</u>	<u>Unit</u>	Y	roximate ear of <u>struction</u>
Bla	dg. Services – Residential		296		Each		1957
Bla	dg. Services – Industrial		108		Each		1955
Ma	unholes		179		Each		1954
Se	wage Lift Stations						
703	MAA, Quad 2207	2 pumps	2		Each	1971	l & 1998
SLS01	MAA, at Facility No. 218 Car Wash	2 pumps	1		Each		1995
SLS02	MAA, Travel Camp RV042	2 pumps	1		Each		2000
SLS03	LAAF, adjacent to Facility No. 2802	2 pumps	1		Each		1998
SLS04	YTC, at Facility No. 2060	1 pump	<u>1</u>		Each		1960
	Subtotal Sewage Lift Stations		6		Each		
<u>Facility</u> <u>Number</u>	System Component Sewage Lagoons	ADEQ Permit	Capacit Y KGD	<u>FY</u> 2003 <u>Flows</u> <u>MG</u>	Quantity	<u>Unit</u>	Approx. Year of Construction
704	MAA 44 600 G	P-100796	056	1.651	1	Eac	1071
2850	MAA 44-600 Sewage Lagoon - 5 Cells	P-100797	256	3.932	1	h Eac	1971
2030	YTC 44-611 Sewage Lagoon - 3 Cells	1-100757	46	3.732	1	h	1954
3029		P-100795		7.300		Eac	
	LAAF 44-608 Sewage Lagoon - 6 Cells		31		1	h	1999
SL358	WEEG 44 600 G	P-100794	10.7	5.464		Eac	1006
	KFFS 44-609 Sewage Lagoon - 4 Cells	General	19.5		1	h Eac	1996
6092	CDH 44-610 Sewage Lagoon - 2 Cells	Permit	7		1	h	1960
	Subtotal Sewage Lagoons		377.5		5	Eac h	

J03.2.2 Wastewater Utility System Non-Fixed Equipment and Specialized Tools Inventory

Table 2 lists other ancillary equipment (spare parts) and **Table 3** lists specialized vehicles and tools included in the purchase. Offerors shall field verify all equipment and tools prior to submitting a bid. Offerors shall make their own determination of the adequacy of all equipment and tools. The successful Offeror shall provide any and all equipment, vehicles, and tools, whether included in the purchase or not, to maintain a fully operating system under the terms of this contract.

Table 2 - Spare Parts

Quantity	Item	Make/Model	Description	Remarks
None				

Table 3 - Specialized Equipment and Vehicles

Description	Quantity	Location	Maker
50 kW Diesel Generator	1	Lift Station 703	Generac

J03.2.3 Wastewater Utility System Manuals, Drawings, and Records Inventory

Table 4 lists the manuals, drawings, and records that will be transferred with the system.

Table 4 - Manuals, Drawings, and Records

	0 /		
Quantity	Item	Description	Remarks

The installation maintains a limited collection of manuals, drawings and records on installed components of the waste water system. Available information will be included in the Technical Library. This information or copies thereof will be transferred during the transition period. Yuma Proving Ground will retain originals and receive updates on system as alterations are completed.

J03.2.4 Known System Deficiencies

Table 5 details the planned upgrade projects associated with the known deficiencies in the wastewater utility systems. However, it is the responsibility of the Offeror to perform due diligence and make their own determination regarding known and unknown deficiencies within the systems.

Table 5 - Known Deficiencies - Yuma Proving Ground - Wastewater Utility Systems

Project No.	Description	Location
8316	Repair YTC Sewage Lagoon	Yuma Test Center
8316	Repair MAA Sewage Lagoon	Main Administration Area

J03.3 Current Service Arrangement

All of YPG's wastewater is collected and treated by equipment and facilities located on the Installation. The wastewater utility systems are operated and maintained by a Contractor.

J03.4 Submittals

The Contractor shall provide the Government monthly submittals for the following:

Invoice (IAW G.2). The Contractor's monthly invoice shall be presented in a format proposed by the Contractor and accepted by the Contracting Officer. Invoices shall be submitted by the 25th of each month for the previous month. Invoices shall be submitted to the Contracting Officer's designee. (This information will be provided upon award.)

Outage Report. The Contractor's monthly outage report will be presented in a format proposed by the Contractor and accepted by the Contracting Officer. Outage reports shall include the following information for Scheduled and Unscheduled outages:

Scheduled: Requestor, date, time, duration, facilities affected, feedback provided during outage, outage notification form number, and digging clearance number.

Unscheduled: Include date, time and duration, facilities affected, response time after notification, completion times, feedback provided at time of outage, specific item failure, probability of future failure, long-term fix, and emergency digging clearance number.

Outage reports shall be submitted by the 25th of each month for the previous month. Outage reports shall be submitted to the Contracting Officer's designee. (This information will be provided upon award.)

Meter Reading Report. If required by the Contracting Officer, the monthly meter reading report shall show the current and previous month readings for all secondary meters. The Contractor's monthly meter reading report will be prepared in the format proposed by the Contractor and accepted by the Contracting Officer. Meter reading reports shall be submitted by the 15th of each month for the previous month. Meter reading reports shall be submitted to the Contracting Officer's designee. (This information will be provided upon award.)

System Efficiency Report. If required by Paragraph C.3, the Contractor shall submit a system efficiency report in a format proposed by the Contractor and accepted by the Contracting Officer. System efficiency reports shall be submitted by the 25th of each month for the previous month. System efficiency reports shall be submitted to the Contracting Officer's designee. (This information will be provided upon award.)

J03.5 Energy Savings and Conservation Projects

IAW Clause C.3, Utility Service Requirement, there are no projects planned or currently executed by YPG for energy conservation purposes.

J03.6 Service Area

IAW Paragraph C.4, Service Area, the service area is defined as all areas within the YPG boundaries.

J03.7 Off-Installation Sites

There are no off-Installation sites associated with this scope.

J03.8 Specific Transition Requirements

IAW Clause C.13, Operational Transition Plan, **Table 6** lists service connections and disconnections required upon transfer, and **Table 7** lists the improvement projects required upon transfer of YPG's wastewater system.

Location		Description
-		
None.		
None.		
None. able 7 - System Improvement Pro	jects	

J03.9 Wastewater System Points of Demarcation

The point of demarcation is defined as the point on the wastewater collection pipe where ownership changes from the Grantee to the building owner. During the operation and maintenance transition period, concurrence on specific demarcation points will be documented during the joint inventory of facilities.

Table 8 – Lines of Demarcations – Yuma Proving Ground – Wastewater Utility Systems

Point of Demarcation	Applicable Scenario	Sketch
Point where the service line enters the structure.	Sewer system flow meter is located on the service line entering the structure.	Sewer System Service Line Flow Meter Structure Point of Demarcation Sewer System
Point of demarcation is the cleanout device if within 10' of the building perimeter.	No flow meter exists and a sewer system cleanout is located within 10 feet of the building perimeter on the service line.	Sewer System Service Line Pipe Cleanout Structure Point of Demarcation Sewer System
Point where the service line enters the structure. Note: A new cleanout device should be installed within 10' of building during any stoppage or maintenance action. This will then become the new point of demarcation.	No flow meter or cleanout exists on the service line entering the structure.	Sewer System Service Line Structure Point of Demarcation Sewer System
The point of demarcation is the downstream side of oil/water separator.	All oil/water separators and grease traps.	Wastewater Collection Pipe Service Line Structure Oil/Water Separator Point of Demarcation

J03.9.1 Unique Points of Demarcation

Table 9 lists anomalous points of demarcation that do not fit any of the above scenarios.

		Table 9 -	Unique Points of Demarcation	
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Building No.	Point of Demarcation Description
None.	